



SEQUENCE LISTING

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The Regents of the University of California

<120> Methods for Treating Cancer by Inhibiting Wnt Signaling

<130> 023070-125630US

<140> US 10/678,639

<141> 2003-10-03

<150> US 10/264,825

<151> 2002-10-04

<150> US 60/509,037

<151> 2002-10-04

<150> US 60/491,350

<151> 2003-07-31

<160> 80

<170> PatentIn Ver. 2.1

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Leu Ala Leu Ala Ala Leu Pro Ala Ala Leu Ala Ala Asn Ser Ser Gly  
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Arg Trp Trp Gly Ile Val Asn Val Ala Ser Ser Thr Asn Leu Leu Thr  
35 40 45

Asp Ser Lys Ser Leu Gln Leu Val Leu Glu Pro Ser Leu Gln Leu Leu  
50 55 60

Ser Arg Lys Gln Arg Arg Leu Ile Arg Gln Asn Pro Gly Ile Leu His  
65 70 75 80

Ser Val Ser Gly Gly Leu Gln Ser Ala Val Arg Glu Cys Lys Trp Gln  
85 90 95

Phe Arg Asn Arg Arg Trp Asn Cys Pro Thr Ala Pro Gly Pro His Leu  
100 105 110

Phe Gly Lys Ile Val Asn Arg Gly Cys Arg Glu Thr Ala Phe Ile Phe  
115 120 125

Ala Ile Thr Ser Ala Gly Val Thr His Ser Val Ala Arg Ser Cys Ser  
 130 135 140  
 Glu Gly Ser Ile Glu Ser Cys Thr Cys Asp Tyr Arg Arg Arg Gly Pro  
 145 150 155 160  
 Gly Gly Pro Asp Trp His Trp Gly Gly Cys Ser Asp Asn Ile Asp Phe  
 165 170 175  
 Gly Arg Leu Phe Gly Arg Glu Phe Val Asp Ser Gly Glu Lys Gly Arg  
 180 185 190  
 Asp Leu Arg Phe Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Thr  
 195 200 205  
 Thr Val Phe Ser Glu Met Arg Gln Glu Cys Lys Cys His Gly Met Ser  
 210 215 220  
 Gly Ser Cys Thr Val Arg Thr Cys Trp Met Arg Leu Pro Thr Leu Arg  
 225 230 235 240  
 Ala Val Gly Asp Val Leu Arg Asp Arg Phe Asp Gly Ala Ser Arg Val  
 245 250 255  
 Leu Tyr Gly Asn Arg Gly Ser Asn Arg Ala Ser Arg Ala Glu Leu Leu  
 260 265 270  
 Arg Leu Glu Pro Glu Asp Pro Ala His Lys Pro Pro Ser Pro His Asp  
 275 280 285  
 Leu Val Tyr Phe Glu Lys Ser Pro Asn Phe Cys Thr Tyr Ser Gly Arg  
 290 295 300  
 Leu Gly Thr Ala Gly Thr Ala Gly Arg Ala Cys Asn Ser Ser Ser Pro  
 305 310 315 320  
 Ala Leu Asp Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly His Arg Thr  
 325 330 335  
 Arg Thr Gln Arg Val Thr Glu Arg Cys Asn Cys Thr Phe His Trp Cys  
 340 345 350  
 Cys His Val Ser Cys Arg Asn Cys Thr His Thr Arg Val Leu His Glu  
 355 360 365  
 Cys Leu  
 370

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Ser Ala Gly Val Thr His Ser Val Ala Arg Ser Cys  
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Leu Glu Pro Glu Asp Pro Ala His Lys Pro Pro Ser Pro Cys  
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Asp Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly His Arg Thr Arg Thr  
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Gln Arg Val Thr Glu Arg Cys  
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 His Val Ser Cys Arg Asn Cys Thr His Thr Arg Val Leu His Glu Cys  
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Leu

<210> 8  
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 <223> human Wingless-type 2 (Wnt-2) peptide sequence #1

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 Met Asn Ala Pro Leu Gly Gly Ile Trp Leu Trp Leu Pro Leu Leu Leu  
           1                  5                  10                  15

Thr Trp Leu Thr Pro Glu Val Asn Ser Ser Trp Trp Tyr Met Arg Ala  
                   20                  25                  30

Thr Gly Gly Ser Ser Arg Val Met Cys Asp Asn Val Pro Gly Leu Val  
                   35                  40                  45

Ser Ser Gln Arg Gln Leu Cys His Arg His Pro Asp Val Met Arg Ala  
           50                  55                  60

Ile Ser Gln Gly Val Ala Glu Trp Thr Ala Glu Cys Gln His Gln Phe  
           65                  70                  75                  80

Arg Gln His Arg Trp Asn Cys Asn Thr Leu Asp Arg Asp His Ser Leu  
                   85                  90                  95

Phe Gly Arg Val Leu Leu Arg Ser Ser Arg Glu Ser Ala Phe Val Tyr  
                   100                  105                  110

Ala Ile Ser Ser Ala Gly Val Val Phe Ala Ile Thr Arg Ala Cys Ser  
           115                  120                  125

Gln Gly Glu Val Lys Ser Cys Ser Cys Asp Pro Lys Lys Met Gly Ser  
           130                  135                  140

Ala Lys Asp Ser Lys Gly Ile Phe Asp Trp Gly Gly Cys Ser Asp Asn  
           145                  150                  155                  160

Ile Asp Tyr Gly Ile Lys Phe Ala Arg Ala Phe Val Asp Ala Lys Glu  
                   165                  170                  175

Arg Lys Gly Lys Asp Ala Arg Ala Leu Met Asn Leu His Asn Asn Arg  
           180                  185                  190

Ala Gly Arg Lys Ala Val Lys Arg Phe Leu Lys Gln Glu Cys Lys Cys  
           195                  200                  205

His Gly Val Ser Gly Ser Cys Thr Leu Arg Thr Cys Trp Leu Ala Met  
           210                  215                  220

Ala Asp Phe Arg Lys Thr Gly Asp Tyr Leu Trp Arg Lys Tyr Asn Gly  
225 230 235 240

Ala Ile Gln Val Val Met Asn Gln Asp Gly Thr Gly Phe Thr Val Ala  
245 250 255

Asn Glu Arg Phe Lys Lys Pro Thr Lys Asn Asp Leu Val Tyr Phe Glu  
260 265 270

Asn Ser Pro Asp Tyr Cys Ile Arg Asp Arg Glu Ala Gly Ser Leu Gly  
275 280 285

Thr Ala Gly Arg Val Cys Asn Leu Thr Ser Arg Gly Met Asp Ser Cys  
290 295 300

Glu Val Met Cys Cys Gly Arg Gly Tyr Asp Thr Ser His Val Thr Arg  
305 310 315 320

Met Thr Lys Cys Gly Cys Lys Phe His Trp Cys Cys Ala Val Arg Cys  
325 330 335

Gln Asp Cys Leu Glu Ala Leu Asp Val His Thr Cys Lys Ala Pro Lys  
340 345 350

Asn Ala Asp Trp Thr Thr Ala Thr  
355 360

<210> 9  
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<213> Homo sapiens

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amino acids 49-63 of human Wnt-2

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Ser Ser Gln Arg Gln Leu Cys His Arg His Pro Asp Val Met Arg  
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<212> PRT  
<213> Homo sapiens

<220>  
<223> human Wingless-type 2 (Wnt-2) peptide sequence #3

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Cys Asp Pro Lys Lys Met Gly Ser Ala Lys Asp Ser Lys Gly  
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<210> 11  
<211> 13  
<212> PRT  
<213> Homo sapiens

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<220>
<223> human Wingless-type 2 (Wnt-2) peptide sequence #4

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Val Asp Ala Lys Glu Arg Lys Gly Lys Asp Ala Arg Cys
  1             5             10

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<212> PRT
<213> Homo sapiens

<220>
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Asp Val His Thr Cys Lys Ala Pro Lys Asn Ala Asp Trp Thr Thr Ala
  1             5             10             15

Thr Cys

<210> 13
<211> 355
<212> PRT
<213> Homo sapiens

<220>
<223> human Wingless-type 3 (Wnt-3) peptide sequence #1

<400> 13
Met Glu Pro His Leu Leu Gly Leu Leu Leu Gly Leu Leu Leu Gly Gly
  1             5             10             15

Thr Arg Val Leu Ala Gly Tyr Pro Ile Trp Trp Ser Leu Ala Leu Gly
      20             25             30

Gln Gln Tyr Thr Ser Leu Gly Ser Gln Pro Leu Leu Cys Gly Ser Ile
      35             40             45

Pro Gly Leu Val Pro Lys Gln Leu Arg Phe Cys Arg Asn Tyr Ile Glu
      50             55             60

Ile Met Pro Ser Val Ala Glu Gly Val Lys Leu Gly Ile Gln Glu Cys
      65             70             75             80

Gln His Gln Phe Arg Gly Arg Arg Trp Asn Cys Thr Thr Ile Asp Asp
      85             90             95

Ser Leu Ala Ile Phe Gly Pro Val Leu Asp Lys Ala Thr Arg Glu Ser
      100            105            110

Ala Phe Val His Ala Ile Ala Ser Ala Gly Val Ala Phe Ala Val Thr
      115            120            125

Arg Ser Cys Ala Glu Gly Thr Ser Thr Ile Cys Gly Cys Asp Ser His
      130            135            140

His Lys Gly Pro Pro Gly Glu Gly Trp Lys Trp Gly Gly Cys Ser Glu
      145            150            155            160

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Asp Ala Asp Phe Gly Val Leu Val Ser Arg Glu Phe Ala Asp Ala Arg  
 165 170 175  
 Glu Asn Arg Pro Asp Ala Arg Ser Ala Met Asn Lys His Asn Asn Glu  
 180 185 190  
 Ala Gly Arg Thr Thr Ile Leu Asp His Met His Leu Lys Cys Lys Cys  
 195 200 205  
 His Gly Leu Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Trp Ala Gln  
 210 215 220  
 Pro Asp Phe Arg Ala Ile Gly Asp Phe Leu Lys Asp Lys Tyr Asp Ser  
 225 230 235 240  
 Ala Ser Glu Met Val Val Glu Lys His Arg Glu Ser Arg Gly Trp Val  
 245 250 255  
 Glu Thr Leu Arg Ala Lys Tyr Ser Leu Phe Lys Pro Pro Thr Glu Arg  
 260 265 270  
 Asp Leu Val Tyr Tyr Glu Asn Ser Pro Asn Phe Cys Glu Pro Asn Pro  
 275 280 285  
 Glu Thr Gly Ser Phe Gly Thr Arg Asp Arg Thr Cys Asn Val Thr Ser  
 290 295 300  
 His Gly Ile Asp Gly Cys Asp Leu Leu Cys Cys Gly Arg Gly His Asn  
 305 310 315 320  
 Thr Arg Thr Glu Lys Arg Lys Glu Lys Cys His Cys Ile Phe His Trp  
 325 330 335  
 Cys Cys Tyr Val Ser Cys Gln Glu Cys Ile Arg Ile Tyr Asp Val His  
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 Thr Cys Lys  
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 <212> PRT  
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<220>  
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 Ser Ser Leu Gly Ser Gln Pro Ile Leu Cys Ala Ser Ile Pro Gly Leu  
 35 40 45  
 Val Pro Lys Gln Leu Arg Phe Cys Arg Asn Tyr Val Glu Ile Met Pro  
 50 55 60

Ser Val Ala Glu Gly Ile Lys Ile Gly Ile Gln Glu Cys Gln His Gln  
 65 70 75 80  
 Phe Arg Gly Arg Arg Trp Asn Cys Thr Thr Val His Asp Ser Leu Ala  
 85 90 95  
 Ile Phe Gly Pro Val Leu Asp Lys Ala Thr Arg Glu Ser Ala Phe Val  
 100 105 110  
 His Ala Ile Ala Ser Ala Gly Val Ala Phe Ala Val Thr Arg Ser Cys  
 115 120 125  
 Ala Glu Gly Thr Ala Ala Ile Cys Gly Cys Ser Ser Arg His Gln Gly  
 130 135 140  
 Ser Pro Gly Lys Gly Trp Lys Trp Gly Gly Cys Ser Glu Asp Ile Glu  
 145 150 155 160  
 Phe Gly Gly Met Val Ser Arg Glu Phe Ala Asp Ala Arg Glu Asn Arg  
 165 170 175  
 Pro Asp Ala Arg Ser Ala Met Asn Arg His Asn Asn Glu Ala Gly Arg  
 180 185 190  
 Gln Ala Ile Ala Ser His Met His Leu Lys Cys Lys Cys His Gly Leu  
 195 200 205  
 Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Trp Ser Gln Pro Asp Phe  
 210 215 220  
 Arg Ala Ile Gly Asp Phe Leu Lys Asp Lys Tyr Asp Ser Ala Ser Glu  
 225 230 235 240  
 Met Val Val Glu Lys His Arg Glu Ser Arg Gly Trp Val Glu Thr Leu  
 245 250 255  
 Arg Pro Arg Tyr Thr Tyr Phe Lys Val Pro Thr Glu Arg Asp Leu Val  
 260 265 270  
 Tyr Tyr Glu Ala Ser Pro Asn Phe Cys Glu Pro Asn Pro Glu Thr Gly  
 275 280 285  
 Ser Phe Gly Thr Arg Asp Arg Thr Cys Asn Val Ser Ser His Gly Ile  
 290 295 300  
 Asp Gly Cys Asp Leu Leu Cys Cys Gly Arg Gly His Asn Ala Arg Ala  
 305 310 315 320  
 Glu Arg Arg Arg Glu Lys Cys Arg Cys Val Phe His Trp Cys Cys Tyr  
 325 330 335  
 Val Ser Cys Gln Glu Cys Thr Arg Val Tyr Asp Val His Thr Cys Lys  
 340 345 350  
  
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 <213> Homo sapiens



<220>

<223> human Wingless-type 4 (Wnt-4) peptide sequence

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Val Phe Ser Ala Ala Ala Ser Asn Trp Leu Tyr Leu Ala Lys Leu Ser  
20 25 30

Ser Val Gly Ser Ile Ser Glu Glu Glu Thr Cys Glu Lys Leu Lys Gly  
35 40 45

Leu Ile Gln Arg Gln Val Gln Met Cys Lys Arg Asn Leu Glu Val Met  
50 55 60

Asp Ser Val Arg Arg Gly Ala Gln Leu Ala Ile Glu Glu Cys Gln Tyr  
65 70 75 80

Gln Phe Arg Asn Arg Arg Trp Asn Cys Ser Thr Leu Asp Ser Leu Pro  
85 90 95

Val Phe Gly Lys Val Val Thr Gln Gly Thr Arg Glu Ala Ala Phe Val  
100 105 110

Tyr Ala Ile Ser Ser Ala Gly Val Ala Phe Ala Val Thr Arg Ala Cys  
115 120 125

Ser Ser Gly Glu Leu Glu Lys Cys Gly Cys Asp Arg Thr Val His Gly  
130 135 140

Val Ser Pro Gln Gly Phe Gln Trp Ser Gly Cys Ser Asp Asn Ile Ala  
145 150 155 160

Tyr Gly Val Ala Phe Ser Gln Ser Phe Val Asp Val Arg Glu Arg Ser  
165 170 175

Lys Gly Ala Ser Ser Ser Arg Ala Leu Met Asn Leu His Asn Asn Glu  
180 185 190

Ala Gly Arg Lys Ala Ile Leu Thr His Met Arg Val Glu Cys Lys Cys  
195 200 205

His Gly Val Ser Gly Ser Cys Glu Val Lys Thr Cys Trp Arg Ala Val  
210 215 220

Pro Pro Phe Arg Gln Val Gly His Ala Leu Lys Glu Lys Phe Asp Gly  
225 230 235 240

Ala Thr Glu Val Glu Pro Arg Arg Val Gly Ser Ser Arg Ala Leu Val  
245 250 255

Pro Arg Asn Ala Gln Phe Lys Pro His Thr Asp Glu Asp Leu Val Tyr  
260 265 270

Leu Glu Pro Ser Pro Asp Phe Cys Glu Gln Asp Met Arg Ser Gly Val  
275 280 285

Leu Gly Thr Arg Gly Arg Thr Cys Asn Lys Thr Ser Lys Ala Ile Asp  
290 295 300

Gly Cys Glu Leu Leu Cys Cys Gly Arg Gly Phe His Thr Ala Gln Val  
 305 310 315 320

Glu Leu Ala Glu Arg Cys Ser Cys Lys Phe His Trp Cys Cys Phe Val  
 325 330 335

Lys Cys Arg Gln Cys Gln Arg Leu Val Glu Leu His Thr Cys Arg  
 340 345 350

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<220>  
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Ile Phe Phe Ser Phe Ala Gln Val Val Ile Glu Ala Asn Ser Trp Trp  
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Ser Leu Gly Met Asn Asn Pro Val Gln Met Ser Glu Val Tyr Ile Ile  
 35 40 45

Gly Ala Gln Pro Leu Cys Ser Gln Leu Ala Gly Leu Ser Gln Gly Gln  
 50 55 60

Lys Lys Leu Cys His Leu Tyr Gln Asp His Met Gln Tyr Ile Gly Glu  
 65 70 75 80

Gly Ala Lys Thr Gly Ile Lys Glu Cys Gln Tyr Gln Phe Arg His Arg  
 85 90 95

Arg Trp Asn Cys Ser Thr Val Asp Asn Thr Ser Val Phe Gly Arg Val  
 100 105 110

Met Gln Ile Gly Ser Arg Glu Thr Ala Phe Thr Tyr Ala Val Ser Ala  
 115 120 125

Ala Gly Val Val Asn Ala Met Ser Arg Ala Cys Arg Glu Gly Glu Leu  
 130 135 140

Ser Thr Cys Gly Cys Ser Arg Ala Ala Arg Pro Lys Asp Leu Pro Arg  
 145 150 155 160

Asp Trp Leu Trp Gly Gly Cys Gly Asp Asn Ile Asp Tyr Gly Tyr Arg  
 165 170 175

Phe Ala Lys Glu Phe Val Asp Ala Arg Glu Arg Glu Arg Ile His Ala  
 180 185 190

Lys Gly Ser Tyr Glu Ser Ala Arg Ile Leu Met Asn Leu His Asn Asn  
 195 200 205

Glu Ala Gly Arg Arg Thr Val Tyr Asn Leu Ala Asp Val Ala Cys Lys  
 210 215 220

Cys His Gly Val Ser Gly Ser Cys Ser Leu Lys Thr Cys Trp Leu Gln  
 225 230 235 240  
 Leu Ala Asp Phe Arg Lys Val Gly Asp Ala Leu Lys Glu Lys Tyr Asp  
 245 250 255  
 Ser Ala Ala Ala Met Arg Leu Asn Ser Arg Gly Lys Leu Val Gln Val  
 260 265 270  
 Asn Ser Arg Phe Asn Ser Pro Thr Thr Gln Asp Leu Val Tyr Ile Asp  
 275 280 285  
 Pro Ser Pro Asp Tyr Cys Val Arg Asn Glu Ser Thr Gly Ser Leu Gly  
 290 295 300  
 Thr Gln Gly Arg Leu Cys Asn Lys Thr Ser Glu Gly Met Asp Gly Cys  
 305 310 315 320  
 Glu Leu Met Cys Cys Gly Arg Gly Tyr Asp Gln Phe Lys Thr Val Gln  
 325 330 335  
 Thr Glu Arg Cys His Cys Lys Phe His Trp Cys Cys Tyr Val Lys Cys  
 340 345 350  
 Lys Lys Cys Thr Glu Ile Val Asp Gln Phe Val Cys Lys  
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 20 25 30  
 Pro Val Gln Arg Pro Glu Met Phe Ile Ile Gly Ala Gln Pro Val Cys  
 35 40 45  
 Ser Gln Leu Pro Gly Leu Ser Pro Gly Gln Arg Lys Leu Cys Gln Leu  
 50 55 60  
 Tyr Gln Glu His Met Ala Tyr Ile Gly Glu Gly Ala Lys Thr Gly Ile  
 65 70 75 80  
 Lys Glu Cys Gln His Gln Phe Arg Gln Arg Arg Trp Asn Cys Ser Thr  
 85 90 95  
 Ala Asp Asn Ala Ser Val Phe Gly Arg Val Met Gln Ile Gly Ser Arg  
 100 105 110  
 Glu Thr Ala Phe Thr His Ala Val Ser Ala Ala Gly Val Val Asn Ala  
 115 120 125

Ile Ser Arg Ala Cys Arg Glu Gly Glu Leu Ser Thr Cys Gly Cys Ser  
 130 135 140  
 Arg Thr Ala Arg Pro Lys Asp Leu Pro Arg Asp Trp Leu Trp Gly Gly  
 145 150 155 160  
 Cys Gly Asp Asn Val Glu Tyr Gly Tyr Arg Phe Ala Lys Glu Phe Val  
 165 170 175  
 Asp Ala Arg Glu Arg Glu Lys Asn Phe Ala Lys Gly Ser Glu Glu Gln  
 180 185 190  
 Gly Arg Val Leu Met Asn Leu Gln Asn Asn Glu Ala Gly Arg Arg Ala  
 195 200 205  
 Val Tyr Lys Met Ala Asp Val Ala Cys Lys Cys His Gly Val Ser Gly  
 210 215 220  
 Ser Cys Ser Leu Lys Thr Cys Trp Leu Gln Leu Ala Glu Phe Arg Lys  
 225 230 235 240  
 Val Gly Asp Arg Leu Lys Glu Lys Tyr Asp Ser Ala Ala Ala Met Arg  
 245 250 255  
 Val Thr Arg Lys Gly Arg Leu Glu Leu Val Asn Ser Arg Phe Thr Gln  
 260 265 270  
 Pro Thr Pro Glu Asp Leu Val Tyr Val Asp Pro Ser Pro Asp Tyr Cys  
 275 280 285  
 Leu Arg Asn Glu Ser Thr Gly Ser Leu Gly Thr Gln Gly Arg Leu Cys  
 290 295 300  
 Asn Lys Thr Ser Glu Gly Met Asp Gly Cys Glu Leu Met Cys Cys Gly  
 305 310 315 320  
 Arg Gly Tyr Asn Gln Phe Lys Ser Val Gln Val Glu Arg Cys His Cys  
 325 330 335  
 Lys Phe His Trp Cys Cys Phe Val Arg Cys Lys Lys Cys Thr Glu Ile  
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 Val Asp Gln Tyr Ile Cys Lys  
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<210> 18

<211> 365

<212> PRT

<213> Homo sapiens

<220>

<223> human Wingless-type 6 (Wnt-6) peptide sequence

<400> 18

Met Leu Pro Pro Leu Pro Ser Arg Leu Gly Leu Leu Leu Leu Leu  
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Leu Cys Pro Ala His Val Gly Gly Leu Trp Trp Ala Val Gly Ser Pro  
 20 25 30

Leu Val Met Asp Pro Thr Ser Ile Cys Arg Lys Ala Arg Arg Leu Ala  
 35 40 45  
 Gly Arg Gln Ala Glu Leu Cys Gln Ala Glu Pro Glu Val Val Ala Glu  
 50 55 60  
 Leu Ala Arg Gly Ala Arg Leu Gly Val Arg Glu Cys Gln Phe Gln Phe  
 65 70 75 80  
 Arg Phe Arg Arg Trp Asn Cys Ser Ser His Ser Lys Ala Phe Gly Arg  
 85 90 95  
 Ile Leu Gln Gln Asp Ile Arg Glu Thr Ala Phe Val Phe Ala Ile Thr  
 100 105 110  
 Ala Ala Gly Ala Ser His Ala Val Thr Gln Ala Cys Ser Met Gly Glu  
 115 120 125  
 Leu Leu Gln Cys Gly Cys Gln Ala Pro Arg Gly Arg Ala Pro Pro Arg  
 130 135 140  
 Pro Ser Gly Leu Pro Gly Thr Pro Gly Pro Pro Gly Pro Ala Gly Ser  
 145 150 155 160  
 Pro Glu Gly Ser Ala Ala Trp Glu Trp Gly Gly Cys Gly Asp Asp Val  
 165 170 175  
 Asp Phe Gly Asp Glu Lys Ser Arg Leu Phe Met Asp Ala Arg His Lys  
 180 185 190  
 Arg Gly Arg Gly Asp Ile Arg Ala Leu Val Gln Leu His Asn Asn Glu  
 195 200 205  
 Ala Gly Arg Leu Ala Val Arg Ser His Thr Arg Thr Glu Cys Lys Cys  
 210 215 220  
 His Gly Leu Ser Gly Ser Cys Ala Leu Arg Thr Cys Trp Gln Lys Leu  
 225 230 235 240  
 Pro Pro Phe Arg Glu Val Gly Ala Arg Leu Leu Glu Arg Phe His Gly  
 245 250 255  
 Ala Ser Arg Val Met Gly Thr Asn Asp Gly Lys Ala Leu Leu Pro Ala  
 260 265 270  
 Val Arg Thr Leu Lys Pro Pro Gly Arg Ala Asp Leu Leu Tyr Ala Ala  
 275 280 285  
 Asp Ser Pro Asp Phe Cys Ala Pro Asn Arg Arg Thr Gly Ser Pro Gly  
 290 295 300  
 Thr Arg Gly Arg Ala Cys Asn Ser Ser Ala Pro Asp Leu Ser Gly Cys  
 305 310 315 320  
 Asp Leu Leu Cys Cys Gly Arg Gly His Arg Gln Glu Ser Val Gln Leu  
 325 330 335

Glu Glu Asn Cys Leu Cys Arg Phe His Trp Cys Cys Val Val Gln Cys  
 340 345 350

His Arg Cys Arg Val Arg Lys Glu Leu Ser Leu Cys Leu  
 355 360 365

<210> 19  
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 <212> PRT  
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<220>  
 <223> human Wingless-type 7A (Wnt-7A) peptide sequence

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Gly Met Val Cys Leu Arg Ile Gly Gly Phe Ser Ser Val Val Ala Leu  
 20 25 30

Gly Ala Thr Ile Ile Cys Asn Lys Ile Pro Gly Leu Ala Pro Arg Gln  
 35 40 45

Arg Ala Ile Cys Gln Ser Arg Pro Asp Ala Ile Ile Val Ile Gly Glu  
 50 55 60

Gly Ser Gln Met Gly Leu Asp Glu Cys Gln Phe Gln Phe Arg Asn Gly  
 65 70 75 80

Arg Trp Asn Cys Ser Ala Leu Gly Glu Arg Thr Val Phe Gly Lys Glu  
 85 90 95

Leu Lys Val Gly Ser Arg Asp Gly Ala Phe Thr Tyr Ala Ile Ile Ala  
 100 105 110

Ala Gly Val Ala His Ala Ile Thr Ala Ala Cys Thr His Gly Asn Leu  
 115 120 125

Ser Asp Cys Gly Cys Asp Lys Glu Lys Gln Gly Gln Tyr His Arg Asp  
 130 135 140

Glu Gly Trp Lys Trp Gly Gly Cys Ser Ala Asp Ile Arg Tyr Gly Ile  
 145 150 155 160

Gly Phe Ala Lys Val Phe Val Asp Ala Arg Glu Ile Lys Gln Asn Ala  
 165 170 175

Arg Thr Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Lys Ile Leu  
 180 185 190

Glu Glu Asn Met Lys Leu Glu Cys Lys Cys His Gly Val Ser Gly Ser  
 195 200 205

Cys Thr Thr Lys Thr Cys Trp Thr Thr Leu Pro Gln Phe Arg Glu Leu  
 210 215 220

Gly Tyr Val Leu Lys Asp Lys Tyr Asn Glu Ala Val His Val Glu Pro  
 225 230 235 240



Asp Phe Ser Arg Arg Phe Val Asp Ala Arg Glu Ile Lys Lys Asn Ala  
 165 170 175  
 Arg Arg Leu Met Asn Leu His Asn Asn Glu Ala Gly Arg Lys Val Leu  
 180 185 190  
 Glu Asp Arg Met Gln Leu Glu Cys Lys Cys His Gly Val Ser Gly Ser  
 195 200 205  
 Cys Thr Thr Lys Thr Cys Trp Thr Thr Leu Pro Lys Phe Arg Glu Val  
 210 215 220  
 Gly His Leu Leu Lys Glu Lys Tyr Asn Ala Ala Val Gln Val Glu Val  
 225 230 235 240  
 Val Arg Ala Ser Arg Leu Arg Gln Pro Thr Phe Leu Arg Ile Lys Gln  
 245 250 255  
 Leu Arg Ser Tyr Gln Lys Pro Met Glu Thr Asp Leu Val Tyr Ile Glu  
 260 265 270  
 Lys Ser Pro Asn Tyr Cys Glu Glu Asp Ala Ala Thr Gly Ser Val Gly  
 275 280 285  
 Thr Gln Gly Arg Leu Cys Asn Arg Thr Ser Pro Gly Ala Asp Gly Cys  
 290 295 300  
 Asp Thr Met Cys Cys Gly Arg Gly Tyr Asn Thr His Gln Tyr Thr Lys  
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 325 330 335  
 Asn Thr Cys Ser Glu Arg Thr Glu Val Phe Thr Cys Lys  
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<210> 21  
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 <212> PRT  
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<220>  
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 Ala Phe Ser Ala Ser Ala Trp Ser Val Asn Asn Phe Leu Ile Thr Gly  
 20 25 30  
 Pro Lys Ala Tyr Leu Thr Tyr Thr Thr Ser Val Ala Leu Gly Ala Gln  
 35 40 45  
 Ser Gly Ile Glu Glu Cys Lys Phe Gln Phe Ala Trp Glu Arg Trp Asn  
 50 55 60  
 Cys Pro Glu Asn Ala Leu Gln Leu Ser Thr His Asn Arg Leu Arg Ser  
 65 70 75 80



Ala Thr Arg Glu Thr Ser Phe Ile His Ala Ile Ser Ser Ala Gly Val  
                             85                            90                            95  
 Met Tyr Ile Ile Thr Lys Asn Cys Ser Met Gly Asp Phe Glu Asn Cys  
                             100                            105                            110  
 Gly Cys Asp Gly Ser Asn Asn Gly Lys Thr Gly Gly His Gly Trp Ile  
                             115                            120                            125  
 Trp Gly Gly Cys Ser Asp Asn Val Glu Phe Gly Glu Arg Ile Ser Lys  
                             130                            135                            140  
 Leu Phe Val Asp Ser Leu Glu Lys Gly Lys Asp Ala Arg Ala Leu Met  
                             145                            150                            155                            160  
 Asn Leu His Asn Asn Arg Ala Gly Arg Leu Ala Val Arg Ala Thr Met  
                             165                            170                            175  
 Lys Arg Thr Cys Lys Cys His Gly Ile Ser Gly Ser Cys Ser Ile Gln  
                             180                            185                            190  
 Thr Cys Trp Leu Gln Leu Ala Glu Phe Arg Glu Met Gly Asp Tyr Leu  
                             195                            200                            205  
 Lys Ala Lys Tyr Asp Gln Ala Leu Lys Ile Glu Met Asp Lys Arg Gln  
                             210                            215                            220  
 Leu Arg Ala Gly Asn Ser Ala Glu Gly His Trp Val Pro Ala Glu Ala  
                             225                            230                            235                            240  
 Phe Leu Pro Ser Ala Glu Ala Glu Leu Ile Phe Leu Glu Glu Ser Pro  
                             245                            250                            255  
 Asp Tyr Cys Thr Cys Asn Ser Ser Leu Gly Ile Tyr Gly Thr Glu Gly  
                             260                            265                            270  
 Arg Glu Cys Leu Gln Asn Ser His Asn Thr Ser Arg Trp Glu Arg Arg  
                             275                            280                            285  
 Ser Cys Gly Arg Leu Cys Thr Glu Cys Gly Leu Gln Val Glu Glu Arg  
                             290                            295                            300  
 Lys Thr Glu Val Ile Ser Ser Cys Asn Cys Lys Phe Gln Trp Cys Cys  
                             305                            310                            315                            320  
 Thr Val Lys Cys Asp Gln Cys Arg His Val Val Ser Lys Tyr Tyr Cys  
                             325                            330                            335  
 Ala Arg Ser Pro Gly Ser Ala Gln Ser Leu Gly Arg Val Trp Phe Gly  
                             340                            345                            350  
 Val Tyr Ile  
                             355

<210> 22  
 <211> 351  
 <212> PRT  
 <213> Homo sapiens

<220>

<223> human Wingless-type 8B (Wnt-8B) peptide sequence

<400> 22

```
Met Phe Leu Ser Lys Pro Ser Val Tyr Ile Cys Leu Phe Thr Cys Val
  1             5             10             15

Leu Gln Leu Ser His Ser Trp Ser Val Asn Asn Phe Leu Met Thr Gly
      20             25             30

Pro Lys Ala Tyr Leu Ile Tyr Ser Ser Ser Val Ala Ala Gly Ala Gln
      35             40             45

Ser Gly Ile Glu Glu Cys Lys Tyr Gln Phe Ala Trp Asp Arg Trp Asn
      50             55             60

Cys Pro Glu Arg Ala Leu Gln Leu Ser Ser His Gly Gly Leu Arg Ser
      65             70             75             80

Ala Asn Arg Glu Thr Ala Phe Val His Ala Ile Ser Ser Ala Gly Val
      85             90             95

Met Tyr Thr Leu Thr Arg Asn Cys Ser Leu Gly Asp Phe Asp Asn Cys
      100            105            110

Gly Cys Asp Asp Ser Arg Asn Gly Gln Leu Gly Gly Gln Gly Trp Leu
      115            120            125

Trp Gly Gly Cys Ser Asp Asn Val Gly Phe Gly Glu Ala Ile Ser Lys
      130            135            140

Gln Phe Val Asp Ala Leu Glu Thr Gly Gln Asp Ala Arg Ala Ala Met
      145            150            155            160

Asn Leu His Asn Asn Glu Ala Gly Arg Lys Ala Val Lys Gly Thr Met
      165            170            175

Lys Arg Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys Thr Thr Gln
      180            185            190

Thr Cys Trp Leu Gln Leu Pro Glu Phe Arg Glu Val Gly Ala His Leu
      195            200            205

Lys Glu Lys Tyr His Ala Ala Leu Lys Val Asp Leu Leu Gln Gly Ala
      210            215            220

Gly Asn Ser Ala Ala Ala Arg Gly Ala Ile Ala Asp Thr Phe Arg Ser
      225            230            235            240

Ile Ser Thr Arg Glu Leu Val His Leu Glu Asp Ser Pro Asp Tyr Cys
      245            250            255

Leu Glu Asn Lys Thr Leu Gly Leu Leu Gly Thr Glu Gly Arg Glu Cys
      260            265            270

Leu Arg Arg Gly Arg Ala Leu Gly Arg Trp Glu Leu Arg Ser Cys Arg
      275            280            285

Arg Leu Cys Gly Asp Cys Gly Leu Ala Val Glu Glu Arg Arg Ala Glu
      290            295            300
```

Thr Val Ser Ser Cys Asn Cys Lys Phe His Trp Cys Cys Ala Val Arg  
 305 310 315 320

Cys Glu Gln Cys Arg Arg Arg Val Thr Lys Tyr Phe Cys Ser Arg Ala  
 325 330 335

Glu Arg Pro Arg Gly Gly Ala Ala His Lys Pro Gly Arg Lys Pro  
 340 345 350

<210> 23  
 <211> 417  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Wingless-type 10A (Wnt-10A) peptide sequence

<400> 23  
 Met Gly Ser Ala His Pro Arg Pro Trp Leu Arg Leu Arg Pro Gln Pro  
 1 5 10 15

Gln Pro Arg Pro Ala Leu Trp Val Leu Leu Phe Phe Leu Leu Leu Leu  
 20 25 30

Ala Ala Ala Met Pro Arg Ser Ala Pro Asn Asp Ile Leu Asp Leu Arg  
 35 40 45

Leu Pro Pro Glu Pro Val Leu Asn Ala Asn Thr Val Cys Leu Thr Leu  
 50 55 60

Pro Gly Leu Ser Arg Arg Gln Met Glu Val Cys Val Arg His Pro Asp  
 65 70 75 80

Val Ala Ala Ser Ala Ile Gln Gly Ile Gln Ile Ala Ile His Glu Cys  
 85 90 95

Gln His Gln Phe Arg Asp Gln Arg Trp Asn Cys Ser Ser Leu Glu Thr  
 100 105 110

Arg Asn Lys Ile Pro Tyr Glu Ser Pro Ile Phe Ser Arg Gly Phe Arg  
 115 120 125

Glu Ser Ala Phe Ala Tyr Ala Ile Ala Ala Ala Gly Val Val His Ala  
 130 135 140

Val Ser Asn Ala Cys Ala Leu Gly Lys Leu Lys Ala Cys Gly Cys Asp  
 145 150 155 160

Ala Ser Arg Arg Gly Asp Glu Glu Ala Phe Arg Arg Lys Leu His Arg  
 165 170 175

Leu Gln Leu Asp Ala Leu Gln Arg Gly Lys Gly Leu Ser His Gly Val  
 180 185 190

Pro Glu His Pro Ala Leu Pro Thr Ala Ser Pro Gly Leu Gln Asp Ser  
 195 200 205

Trp Glu Trp Gly Gly Cys Ser Pro Asp Met Gly Phe Gly Glu Arg Phe  
 210 215 220

Ser Lys Asp Phe Leu Asp Ser Arg Glu Pro His Arg Asp Ile His Ala  
 225 230 235 240  
 Arg Met Arg Leu His Asn Asn Arg Val Gly Arg Gln Ala Val Met Glu  
 245 250 255  
 Asn Met Arg Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys Gln  
 260 265 270  
 Leu Lys Thr Cys Trp Gln Val Thr Pro Glu Phe Arg Thr Val Gly Ala  
 275 280 285  
 Leu Leu Arg Ser Arg Phe His Arg Ala Thr Leu Ile Arg Pro His Asn  
 290 295 300  
 Arg Asn Gly Gly Gln Leu Glu Pro Gly Pro Ala Gly Ala Pro Ser Pro  
 305 310 315 320  
 Ala Pro Gly Ala Pro Gly Pro Arg Arg Arg Ala Ser Pro Ala Asp Leu  
 325 330 335  
 Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg Glu Pro Arg Leu  
 340 345 350  
 Asp Ser Ala Gly Thr Val Gly Arg Leu Cys Asn Lys Ser Ser Ala Gly  
 355 360 365  
 Ser Asp Gly Cys Gly Ser Met Cys Cys Gly Arg Gly His Asn Ile Leu  
 370 375 380  
 Arg Gln Thr Arg Ser Glu Arg Cys His Cys Arg Phe His Trp Cys Cys  
 385 390 395 400  
 Phe Val Val Cys Glu Glu Cys Arg Ile Thr Glu Trp Val Ser Val Cys  
 405 410 415

Lys

<210> 24  
 <211> 389  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Wingless-type 10B (Wnt-10B) peptide sequence

<400> 24  
 Met Leu Glu Glu Pro Arg Pro Arg Pro Pro Ser Gly Leu Ala Gly  
 1 5 10 15  
 Leu Leu Phe Leu Ala Leu Cys Ser Arg Ala Leu Ser Asn Glu Ile Leu  
 20 25 30  
 Gly Leu Lys Leu Pro Gly Glu Pro Pro Leu Thr Ala Asn Thr Val Cys  
 35 40 45  
 Leu Thr Leu Ser Gly Leu Ser Lys Arg Gln Leu Gly Leu Cys Leu Arg  
 50 55 60

Asn Pro Asp Val Thr Ala Ser Ala Leu Gln Gly Leu His Ile Ala Val  
 65 70 75 80  
 His Glu Cys Gln His Gln Leu Arg Asp Gln Arg Trp Asn Cys Ser Ala  
 85 90 95  
 Leu Glu Gly Gly Gly Arg Leu Pro His His Ser Ala Ile Leu Lys Arg  
 100 105 110  
 Gly Phe Arg Glu Ser Ala Phe Ser Phe Ser Met Leu Ala Ala Gly Val  
 115 120 125  
 Met His Ala Val Ala Thr Ala Cys Ser Leu Gly Lys Leu Val Ser Cys  
 130 135 140  
 Gly Cys Gly Trp Lys Gly Ser Gly Glu Gln Asp Arg Leu Arg Ala Lys  
 145 150 155 160  
 Leu Leu Gln Leu Gln Ala Leu Ser Arg Gly Lys Ser Phe Pro His Ser  
 165 170 175  
 Leu Pro Ser Pro Gly Pro Gly Ser Ser Pro Ser Pro Gly Pro Gln Asp  
 180 185 190  
 Thr Trp Glu Trp Gly Gly Cys Asn His Asp Met Asp Phe Gly Glu Lys  
 195 200 205  
 Phe Ser Arg Asp Phe Leu Asp Ser Arg Glu Ala Pro Arg Asp Ile Gln  
 210 215 220  
 Ala Arg Met Arg Ile His Asn Asn Arg Val Gly Arg Gln Val Val Thr  
 225 230 235 240  
 Glu Asn Leu Lys Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys  
 245 250 255  
 Gln Phe Lys Thr Cys Trp Arg Ala Ala Pro Glu Phe Arg Ala Val Gly  
 260 265 270  
 Ala Ala Leu Arg Glu Arg Leu Gly Arg Ala Ile Phe Ile Asp Thr His  
 275 280 285  
 Asn Arg Asn Ser Gly Ala Phe Gln Pro Arg Leu Arg Pro Arg Arg Leu  
 290 295 300  
 Ser Gly Glu Leu Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg  
 305 310 315 320  
 Asp Pro Thr Met Gly Ser Pro Gly Thr Arg Gly Arg Ala Cys Asn Lys  
 325 330 335  
 Thr Ser Arg Leu Leu Asp Gly Cys Gly Ser Leu Cys Cys Gly Arg Gly  
 340 345 350  
 His Asn Val Leu Arg Gln Thr Arg Val Glu Arg Cys His Cys Arg Phe  
 355 360 365

His Trp Cys Cys Tyr Val Leu Cys Asp Glu Cys Lys Val Thr Glu Trp  
 370 375 380

Val Asn Val Cys Lys  
 385

<210> 25  
 <211> 354  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Wingless-type 11 (Wnt-11) peptide sequence

<400> 25  
 Met Arg Ala Arg Pro Gln Val Cys Glu Ala Leu Leu Phe Ala Leu Ala  
 1 5 10 15  
 Leu Gln Thr Gly Val Cys Tyr Gly Ile Lys Trp Leu Ala Leu Ser Lys  
 20 25 30  
 Thr Pro Ser Ala Leu Ala Leu Asn Gln Thr Gln His Cys Lys Gln Leu  
 35 40 45  
 Glu Gly Leu Val Ser Ala Gln Val Gln Leu Cys Arg Ser Asn Leu Glu  
 50 55 60  
 Leu Met His Thr Val Val His Ala Ala Arg Glu Val Met Lys Ala Cys  
 65 70 75 80  
 Arg Arg Ala Phe Ala Asp Met Arg Trp Asn Cys Ser Ser Ile Glu Leu  
 85 90 95  
 Ala Pro Asn Tyr Leu Leu Asp Leu Glu Arg Gly Thr Arg Glu Ser Ala  
 100 105 110  
 Phe Val Tyr Ala Leu Ser Ala Ala Thr Ile Ser His Ala Ile Ala Arg  
 115 120 125  
 Ala Cys Thr Ser Gly Asp Leu Pro Gly Cys Ser Cys Gly Pro Val Pro  
 130 135 140  
 Gly Glu Pro Pro Gly Pro Gly Asn Arg Trp Gly Arg Cys Ala Asp Asn  
 145 150 155 160  
 Leu Ser Tyr Gly Leu Leu Met Gly Ala Lys Phe Ser Asp Ala Pro Met  
 165 170 175  
 Lys Val Lys Lys Thr Gly Ser Gln Ala Asn Lys Leu Met Arg Leu His  
 180 185 190  
 Asn Ser Glu Val Gly Arg Gln Ala Leu Arg Ala Ser Leu Glu Met Lys  
 195 200 205  
 Cys Lys Cys His Gly Val Ser Gly Ser Cys Ser Ile Arg Thr Cys Trp  
 210 215 220  
 Lys Gly Leu Gln Glu Leu Gln Asp Val Ala Ala Asp Leu Lys Thr Arg  
 225 230 235 240

Tyr Leu Ser Ala Thr Lys Val Val His Arg Pro Met Gly Thr Arg Lys  
 245 250 255  
 His Leu Val Pro Lys Asp Leu Asp Ile Arg Pro Val Lys Asp Trp Glu  
 260 265 270  
 Leu Val Tyr Leu Gln Ser Ser Pro Asp Phe Cys Met Lys Asn Glu Lys  
 275 280 285  
 Val Gly Ser His Gly Thr Gln Asp Arg Gln Cys Asn Lys Thr Ser Asn  
 290 295 300  
 Gly Ser Asp Ser Cys Asp Leu Met Cys Cys Gly Arg Gly Tyr Asn Pro  
 305 310 315 320  
 Tyr Thr Asp Arg Val Val Glu Arg Cys His Cys Lys Tyr His Trp Cys  
 325 330 335  
 Cys Tyr Val Thr Cys Arg Arg Cys Glu Arg Thr Val Glu Arg Tyr Val  
 340 345 350

Cys Lys

<210> 26  
 <211> 389  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Wingless-type 12 (Wnt-12) peptide sequence

<400> 26  
 Met Leu Glu Glu Pro Arg Pro Arg Pro Pro Pro Ser Gly Leu Ala Gly  
 1 5 10 15  
 Leu Leu Phe Leu Ala Leu Cys Ser Arg Ala Leu Ser Asn Glu Ile Leu  
 20 25 30  
 Gly Leu Lys Leu Pro Gly Glu Pro Pro Leu Thr Ala Asn Thr Val Cys  
 35 40 45  
 Leu Thr Leu Ser Gly Leu Ser Lys Arg Gln Leu Gly Leu Cys Leu Arg  
 50 55 60  
 Asn Pro Asp Val Thr Ala Ser Ala Leu Gln Gly Leu His Ile Ala Val  
 65 70 75 80  
 His Glu Cys Gln His Gln Leu Arg Asp Gln Arg Trp Asn Cys Ser Ala  
 85 90 95  
 Leu Glu Gly Gly Gly Arg Leu Pro His His Ser Ala Ile Leu Lys Arg  
 100 105 110  
 Gly Phe Arg Glu Ser Ala Phe Ser Phe Ser Met Leu Ala Ala Gly Val  
 115 120 125  
 Met His Ala Val Ala Thr Ala Cys Ser Leu Gly Lys Leu Val Ser Cys  
 130 135 140

Gly Cys Gly Trp Lys Gly Ser Gly Glu Gln Asp Arg Leu Arg Ala Lys  
 145 150 155 160  
 Leu Leu Gln Leu Gln Ala Leu Ser Arg Gly Lys Ser Phe Pro His Ser  
 165 170 175  
 Leu Pro Ser Pro Gly Pro Gly Ser Ser Pro Ser Pro Gly Pro Gln Asp  
 180 185 190  
 Thr Trp Glu Trp Gly Gly Cys Asn His Asp Met Asp Phe Gly Glu Lys  
 195 200 205  
 Phe Ser Arg Asp Phe Leu Asp Ser Arg Glu Ala Pro Arg Asp Ile Gln  
 210 215 220  
 Ala Arg Met Arg Ile His Asn Asn Arg Val Gly Arg Gln Val Val Thr  
 225 230 235 240  
 Glu Asn Leu Lys Arg Lys Cys Lys Cys His Gly Thr Ser Gly Ser Cys  
 245 250 255  
 Gln Phe Lys Thr Cys Trp Arg Ala Ala Pro Glu Phe Arg Ala Val Gly  
 260 265 270  
 Ala Ala Leu Arg Glu Arg Leu Gly Arg Ala Ile Phe Ile Asp Thr His  
 275 280 285  
 Asn Arg Asn Ser Gly Ala Phe Gln Pro Arg Leu Arg Pro Arg Arg Leu  
 290 295 300  
 Ser Gly Glu Leu Val Tyr Phe Glu Lys Ser Pro Asp Phe Cys Glu Arg  
 305 310 315 320  
 Asp Pro Thr Met Gly Ser Pro Gly Thr Arg Gly Arg Ala Cys Asn Lys  
 325 330 335  
 Thr Ser Arg Leu Leu Asp Gly Cys Gly Ser Leu Cys Cys Gly Arg Gly  
 340 345 350  
 His Asn Val Leu Arg Gln Thr Arg Val Glu Arg Cys His Cys Arg Phe  
 355 360 365  
 His Trp Cys Cys Tyr Val Leu Cys Asp Glu Cys Lys Val Thr Glu Trp  
 370 375 380  
 Val Asn Val Cys Lys  
 385

<210> 27

<211> 391

<212> PRT

<213> Homo sapiens

<220>

<223> human Wingless-type 13 (Wnt-13) peptide sequence

<400> 27

Met Leu Arg Pro Gly Gly Ala Glu Glu Ala Ala Gln Leu Pro Leu Arg  
 1 5 10 15



Arg Ala Ser Ala Pro Val Pro Val Pro Ser Pro Ala Ala Pro Asp Gly  
 20 25 30  
 Ser Arg Ala Ser Ala Arg Leu Gly Leu Ala Cys Leu Leu Leu Leu Leu  
 35 40 45  
 Leu Leu Thr Leu Pro Ala Arg Val Asp Thr Ser Trp Trp Tyr Ile Gly  
 50 55 60  
 Ala Leu Gly Ala Arg Val Ile Cys Asp Asn Ile Pro Gly Leu Val Ser  
 65 70 75 80  
 Arg Gln Arg Gln Leu Cys Gln Arg Tyr Pro Asp Ile Met Arg Ser Val  
 85 90 95  
 Gly Glu Gly Ala Arg Glu Trp Ile Arg Glu Cys Gln His Gln Phe Arg  
 100 105 110  
 His His Arg Trp Asn Cys Thr Thr Leu Asp Arg Asp His Thr Val Phe  
 115 120 125  
 Gly Arg Val Met Leu Arg Ser Ser Arg Glu Ala Ala Phe Val Tyr Ala  
 130 135 140  
 Ile Ser Ser Ala Gly Val Val His Ala Ile Thr Arg Ala Cys Ser Gln  
 145 150 155 160  
 Gly Glu Leu Ser Val Cys Ser Cys Asp Pro Tyr Thr Arg Gly Arg His  
 165 170 175  
 His Asp Gln Arg Gly Asp Phe Asp Trp Gly Gly Cys Ser Asp Asn Ile  
 180 185 190  
 His Tyr Gly Val Arg Phe Ala Lys Ala Phe Val Asp Ala Lys Glu Lys  
 195 200 205  
 Arg Leu Lys Asp Ala Arg Ala Leu Met Asn Leu His Asn Asn Arg Cys  
 210 215 220  
 Gly Arg Thr Ala Val Arg Arg Phe Leu Lys Leu Glu Cys Lys Cys His  
 225 230 235 240  
 Gly Val Ser Gly Ser Cys Thr Leu Arg Thr Cys Trp Arg Ala Leu Ser  
 245 250 255  
 Asp Phe Arg Arg Thr Gly Asp Tyr Leu Arg Arg Arg Tyr Asp Gly Ala  
 260 265 270  
 Val Gln Val Met Ala Thr Gln Asp Gly Ala Asn Phe Thr Ala Ala Arg  
 275 280 285  
 Gln Gly Tyr Arg Arg Ala Thr Arg Thr Asp Leu Val Tyr Phe Asp Asn  
 290 295 300  
 Ser Pro Asp Tyr Cys Val Leu Asp Lys Ala Ala Gly Ser Leu Gly Thr  
 305 310 315 320  
 Ala Gly Arg Val Cys Ser Lys Thr Ser Lys Gly Thr Asp Gly Cys Glu  
 325 330 335

Ile Met Cys Cys Gly Arg Gly Tyr Asp Thr Thr Arg Val Thr Arg Val  
340 345 350

Thr Gln Cys Glu Cys Lys Phe His Trp Cys Cys Ala Val Arg Cys Lys  
355 360 365

Glu Cys Arg Asn Thr Val Asp Val His Thr Cys Lys Ala Pro Lys Lys  
370 375 380

Ala Glu Trp Leu Asp Gln Thr  
385 390

<210> 28  
<211> 365  
<212> PRT  
<213> Homo sapiens

<220>  
<223> human Wntless-type 14 (Wnt-14) peptide sequence

<400> 28  
Met Leu Asp Gly Ser Pro Leu Ala Arg Trp Leu Ala Ala Ala Phe Gly  
1 5 10 15

Leu Thr Leu Leu Leu Ala Ala Leu Arg Pro Ser Ala Ala Tyr Phe Gly  
20 25 30

Leu Thr Gly Ser Glu Pro Leu Thr Ile Leu Pro Leu Thr Leu Glu Pro  
35 40 45

Glu Ala Ala Ala Gln Ala His Tyr Lys Ala Cys Asp Arg Leu Lys Leu  
50 55 60

Glu Arg Lys Gln Arg Arg Met Cys Arg Arg Asp Pro Gly Val Ala Glu  
65 70 75 80

Thr Leu Val Glu Ala Val Ser Met Ser Ala Leu Glu Cys Gln Phe Gln  
85 90 95

Phe Arg Phe Glu Arg Trp Asn Cys Thr Leu Glu Gly Arg Tyr Arg Ala  
100 105 110

Ser Leu Leu Lys Arg Gly Phe Lys Glu Thr Ala Phe Leu Tyr Ala Ile  
115 120 125

Ser Ser Ala Gly Leu Thr His Ala Leu Ala Lys Ala Cys Ser Ala Gly  
130 135 140

Arg Met Glu Arg Cys Thr Cys Asp Glu Ala Pro Asp Leu Glu Asn Arg  
145 150 155 160

Glu Ala Trp Gln Trp Gly Gly Cys Gly Asp Asn Leu Lys Tyr Ser Ser  
165 170 175

Lys Phe Val Lys Glu Phe Leu Gly Arg Arg Ser Ser Lys Asp Leu Arg  
180 185 190

Ala Arg Val Asp Phe His Asn Asn Leu Val Gly Val Lys Val Ile Lys  
195 200 205

Ala Gly Val Glu Thr Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys  
210 215 220

Thr Val Arg Thr Cys Trp Arg Gln Leu Ala Pro Phe His Glu Val Gly  
225 230 235 240

Lys His Leu Lys His Lys Tyr Glu Thr Ala Leu Lys Val Gly Ser Thr  
245 250 255

Thr Asn Glu Ala Ala Gly Glu Ala Gly Ala Ile Ser Pro Pro Arg Gly  
260 265 270

Arg Ala Ser Gly Ala Gly Gly Ser Asp Pro Leu Pro Arg Thr Pro Glu  
275 280 285

Leu Val His Leu Asp Asp Ser Pro Ser Phe Cys Leu Ala Gly Arg Phe  
290 295 300

Ser Pro Gly Thr Ala Gly Arg Arg Cys His Arg Glu Lys Asn Cys Glu  
305 310 315 320

Ser Ile Cys Cys Gly Arg Gly His Asn Thr Gln Ser Arg Val Val Thr  
325 330 335

Arg Pro Cys Gln Cys Gln Val Arg Trp Cys Cys Tyr Val Glu Cys Arg  
340 345 350

Gln Cys Thr Gln Arg Glu Glu Val Tyr Thr Cys Lys Gly  
355 360 365

<210> 29  
<211> 357  
<212> PRT  
<213> Homo sapiens

<220>  
<223> human Wingless-type 15 (Wnt-15) peptide sequence

<400> 29  
Met Arg Pro Pro Ala Leu Ala Leu Ala Gly Leu Cys Leu Leu Ala  
1 5 10 15

Leu Pro Ala Ala Ala Ala Ser Tyr Phe Gly Leu Thr Gly Arg Glu Val  
20 25 30

Leu Thr Pro Phe Pro Gly Leu Gly Thr Ala Ala Ala Pro Ala Gln Gly  
35 40 45

Gly Ala His Leu Lys Gln Cys Asp Leu Leu Lys Leu Ser Arg Arg Gln  
50 55 60

Lys Gln Leu Cys Arg Arg Glu Pro Gly Leu Ala Glu Thr Leu Arg Asp  
65 70 75 80

Ala Ala His Leu Gly Leu Leu Glu Cys Gln Phe Gln Phe Arg His Glu  
85 90 95

Arg Trp Asn Cys Ser Leu Glu Gly Arg Thr Gly Leu Leu Lys Arg Gly  
100 105 110

Phe Lys Glu Thr Ala Phe Leu Tyr Ala Val Ser Ser Ala Ala Leu Thr  
 115 120 125  
 His Thr Leu Ala Arg Ala Cys Ser Ala Gly Arg Met Glu Arg Cys Thr  
 130 135 140  
 Cys Asp Asp Ser Pro Gly Leu Glu Ser Arg Gln Ala Trp Gln Trp Gly  
 145 150 155 160  
 Val Cys Gly Asp Asn Leu Lys Tyr Ser Thr Lys Phe Leu Ser Asn Phe  
 165 170 175  
 Leu Gly Ser Lys Arg Gly Asn Lys Asp Leu Arg Ala Arg Ala Asp Ala  
 180 185 190  
 His Asn Thr His Val Gly Ile Lys Ala Val Lys Ser Gly Leu Arg Thr  
 195 200 205  
 Thr Cys Lys Cys His Gly Val Ser Gly Ser Cys Ala Val Arg Thr Cys  
 210 215 220  
 Trp Lys Gln Leu Ser Pro Phe Arg Glu Thr Gly Gln Val Leu Lys Leu  
 225 230 235 240  
 Arg Tyr Asp Ser Ala Val Lys Val Ser Ser Ala Thr Asn Glu Ala Leu  
 245 250 255  
 Gly Arg Leu Glu Leu Trp Ala Pro Ala Arg Gln Gly Ser Leu Thr Lys  
 260 265 270  
 Gly Leu Ala Pro Arg Ser Gly Asp Leu Val Tyr Met Glu Asp Ser Pro  
 275 280 285  
 Ser Phe Cys Arg Pro Ser Lys Tyr Ser Pro Gly Thr Ala Gly Arg Val  
 290 295 300  
 Cys Ser Arg Glu Ala Ser Cys Ser Ser Leu Cys Cys Gly Arg Gly Tyr  
 305 310 315 320  
 Asp Thr Gln Ser Arg Leu Val Ala Phe Ser Cys His Cys Gln Val Gln  
 325 330 335  
 Trp Cys Cys Tyr Val Glu Cys Gln Gln Cys Val Gln Glu Glu Leu Val  
 340 345 350  
 Tyr Thr Cys Lys His  
 355

<210> 30  
 <211> 361  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Wingless-type 16 (Wnt-16) peptide sequence

<400> 30  
 Met Glu Arg His Pro Pro Met Gln Leu Thr Thr Cys Leu Arg Glu Thr  
 1 5 10 15

Leu Phe Thr Gly Ala Ser Gln Lys Thr Ser Leu Trp Trp Leu Gly Ile  
                   20                                  25                                  30

Ala Ser Phe Gly Val Pro Glu Lys Leu Gly Cys Ala Asn Leu Pro Leu  
                   35                                  40                                  45

Asn Ser Arg Gln Lys Glu Leu Cys Lys Arg Lys Pro Tyr Leu Leu Pro  
                   50                                  55                                  60

Ser Ile Arg Glu Gly Ala Arg Leu Gly Ile Gln Glu Cys Arg Ser Gln  
                   65                                  70                                  75                                  80

Phe Arg His Glu Arg Trp Asn Cys Met Ile Thr Ala Ala Ala Thr Thr  
                                   85                                  90                                  95

Ala Pro Met Gly Ala Ser Pro Leu Phe Gly Tyr Glu Leu Ser Ser Gly  
                                   100                                  105                                  110

Thr Lys Glu Thr Ala Phe Ile Tyr Ala Val Met Ala Ala Gly Leu Val  
                   115                                  120                                  125

His Ser Val Thr Arg Ser Cys Ser Ala Gly Asn Met Thr Glu Cys Ser  
                   130                                  135                                  140

Cys Asp Thr Thr Leu Gln Asn Gly Gly Ser Ala Ser Glu Gly Trp His  
                   145                                  150                                  155                                  160

Trp Gly Gly Cys Ser Asp Asp Val Gln Tyr Gly Met Trp Phe Ser Arg  
                                   165                                  170                                  175

Lys Phe Leu Asp Phe Pro Ile Gly Asn Thr Thr Gly Lys Glu Asn Lys  
                                   180                                  185                                  190

Val Leu Leu Ala Met Asn Leu His Asn Asn Glu Ala Gly Arg Gln Ala  
                                   195                                  200                                  205

Val Ala Lys Leu Met Ser Val Asp Cys Arg Cys His Gly Val Ser Gly  
                                   210                                  215                                  220

Ser Cys Ala Val Lys Thr Cys Trp Lys Thr Met Ser Ser Phe Glu Lys  
                   225                                  230                                  235                                  240

Ile Gly His Leu Leu Lys Asp Lys Tyr Glu Asn Ser Ile Gln Ile Ser  
                                   245                                  250                                  255

Asp Lys Ile Lys Arg Lys Met Arg Arg Arg Glu Lys Asp Gln Arg Lys  
                                   260                                  265                                  270

Ile Pro Ile His Lys Asp Asp Leu Leu Tyr Val Asn Lys Ser Pro Asn  
                                   275                                  280                                  285

Tyr Cys Val Glu Asp Lys Lys Leu Gly Ile Pro Gly Thr Gln Gly Arg  
                   290                                  295                                  300

Glu Cys Asn Arg Thr Ser Glu Gly Ala Asp Gly Cys Asn Leu Leu Cys  
                   305                                  310                                  315                                  320

Cys Gly Arg Gly Tyr Asn Thr His Val Val Arg His Val Glu Arg Cys  
                                   325                                  330                                  335

Glu Cys Lys Phe Ile Trp Cys Cys Tyr Val Arg Cys Arg Arg Cys Glu  
 340 345 350

Ser Met Thr Asp Val His Thr Cys Lys  
 355 360

<210> 31  
 <211> 318  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-1 peptide sequence

<400> 31  
 Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly  
 1 5 10 15  
 Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu  
 20 25 30  
 Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro  
 35 40 45  
 Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Trp Leu Leu Glu Ala  
 50 55 60  
 Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly  
 65 70 75 80  
 Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Pro Pro Gln Gln  
 85 90 95  
 Gln Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro  
 100 105 110  
 Asp His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile  
 115 120 125  
 Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln  
 130 135 140  
 Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val  
 145 150 155 160  
 Gln Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro  
 165 170 175  
 Val Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys  
 180 185 190  
 Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe  
 195 200 205  
 Gln Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala  
 210 215 220  
 Gly Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr  
 225 230 235 240

Pro Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly  
245 250 255

Gly Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg  
260 265 270

Gly Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn  
275 280 285

Tyr His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr  
290 295 300

Lys Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg  
305 310 315

<210> 32

<211> 242

<212> PRT

<213> Homo sapiens

<220>

<223> human Frizzled-2 peptide sequence

<400> 32

Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Pro Leu Leu Leu  
1 5 10 15

Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser  
20 25 30

Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr  
35 40 45

Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr  
50 55 60

Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val  
65 70 75 80

Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr  
85 90 95

Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser  
100 105 110

Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe  
115 120 125

Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His  
130 135 140

Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala  
145 150 155 160

Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala  
165 170 175

Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr  
180 185 190

Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro  
 195 200 205

Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro  
 210 215 220

Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu  
 225 230 235 240

Thr Arg

<210> 33  
 <211> 200  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-3 peptide sequence

<400> 33  
 Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe  
 1 5 10 15  
 Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr  
 20 25 30  
 Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn  
 35 40 45  
 Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro  
 50 55 60  
 Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe  
 65 70 75 80  
 Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr  
 85 90 95  
 Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys  
 100 105 110  
 Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser  
 115 120 125  
 Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn  
 130 135 140  
 Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp  
 145 150 155 160  
 Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly  
 165 170 175  
 Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met  
 180 185 190  
 Tyr Phe Arg Arg Glu Glu Leu Ser  
 195 200



<210> 34  
 <211> 217  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-4 peptide sequence

<400> 34  
 Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly  
           1                  5                  10                  15  
 Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Gly  
                   20                  25                  30  
 Pro Ala Arg Gly Phe Gly Asp Glu Glu Arg Arg Cys Asp Pro Ile  
                   35                  40                  45  
 Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro  
           50                  55                  60  
 Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr  
           65                  70                  75                  80  
 Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe  
                   85                  90                  95  
 Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile  
                   100                  105                  110  
 Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys  
           115                  120                  125  
 Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn  
           130                  135                  140  
 Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu  
           145                  150                  155                  160  
 Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln  
                   165                  170                  175  
 Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile  
                   180                  185                  190  
 Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala  
           195                  200                  205  
 Gly Leu Tyr Ser Arg Ser Ala Lys Glu  
           210                  215

<210> 35  
 <211> 233  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-5 peptide sequence

<400> 35

Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu  
1 5 10 15

Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val  
20 25 30

Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu  
35 40 45

Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly  
50 55 60

Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro  
65 70 75 80

Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro  
85 90 95

Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala  
100 105 110

Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro  
115 120 125

Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu  
130 135 140

Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro  
145 150 155 160

Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro  
165 170 175

Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys  
180 185 190

Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn  
195 200 205

Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln  
210 215 220

Pro Ser Phe Ser Ala Asp Glu Arg Thr  
225 230

<210> 36

<211> 196

<212> PRT

<213> Homo sapiens

<220>

<223> human Frizzled-6 peptide sequence

<400> 36

Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu  
1 5 10 15

Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys  
20 25 30

Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His  
           35                          40                          45  
 Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu  
           50                          55                          60  
 Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala  
           65                          70                          75                          80  
 Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg  
                           85                          90                          95  
 Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr  
                           100                          105                          110  
 Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr  
           115                          120                          125  
 Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu  
           130                          135                          140  
 Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp  
           145                          150                          155                          160  
 Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu  
                           165                          170                          175  
 Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser  
           180                          185                          190  
 Asp Glu Leu Glu  
           195

<210> 37  
 <211> 251  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-7 peptide sequence

<400> 37  
 Met Arg Asp Pro Gly Ala Ala Val Pro Leu Ser Ser Leu Gly Phe Cys  
   1                          5                          10                          15  
 Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala  
           20                          25                          30  
 Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe  
           35                          40                          45  
 Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln  
           50                          55                          60  
 Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly  
           65                          70                          75                          80  
 Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro  
           85                          90                          95

Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val  
 100 105 110  
 Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg  
 115 120 125  
 Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu  
 130 135 140  
 Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys  
 145 150 155 160  
 Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro  
 165 170 175  
 Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala  
 180 185 190  
 Leu Pro Pro Gly Ala Ser Asp Gly Lys Gly Arg Pro Ala Phe Pro Phe  
 195 200 205  
 Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe  
 210 215 220  
 Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn  
 225 230 235 240  
 Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg  
 245 250

<210> 38  
 <211> 275  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-8 peptide sequence

<400> 38  
 Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu  
 1 5 10 15  
 Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu  
 20 25 30  
 Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr  
 35 40 45  
 Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu  
 50 55 60  
 Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys  
 65 70 75 80  
 Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys  
 85 90 95  
 Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu  
 100 105 110

Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala  
 115 120 125  
 Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro  
 130 135 140  
 Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala  
 145 150 155 160  
 Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Gly Glu Gln Pro  
 165 170 175  
 Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His  
 180 185 190  
 Arg Gly Gly Gly Arg Gly Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro  
 195 200 205  
 Ala Arg Gly Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly  
 210 215 220  
 Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser  
 225 230 235 240  
 Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln  
 245 250 255  
 Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp  
 260 265 270  
 Glu Arg Ala  
 275

<210> 39  
 <211> 229  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Frizzled-9 peptide sequence

<400> 39  
 Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu  
 1 5 10 15  
 Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg  
 20 25 30  
 Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg  
 35 40 45  
 Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr  
 50 55 60  
 Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val  
 65 70 75 80  
 Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr  
 85 90 95

Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg  
100 105 110

Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln  
115 120 125

Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr  
130 135 140

Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr  
145 150 155 160

Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala  
165 170 175

Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly  
180 185 190

Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser  
195 200 205

Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser  
210 215 220

Arg Arg Asp Lys Asp  
225

<210> 40  
<211> 225  
<212> PRT  
<213> Homo sapiens

<220>  
<223> human Frizzled-10 peptide sequence

<400> 40  
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly  
1 5 10 15

Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly  
20 25 30

Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn  
35 40 45

Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala  
50 55 60

Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His  
65 70 75 80

Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr  
85 90 95

Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln  
100 105 110

Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp  
115 120 125

Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn  
 130 135 140  
 Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg  
 145 150 155 160  
 Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser  
 165 170 175  
 Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys  
 180 185 190  
 Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala  
 195 200 205  
 Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys  
 210 215 220  
 Arg  
 225

<210> 41  
 <211> 716  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Disheveled 3 (Dvl-3) amino acid sequence

<400> 41  
 Met Gly Glu Thr Lys Ile Ile Tyr His Leu Asp Gly Gln Glu Thr Pro  
 1 5 10 15  
 Tyr Leu Val Lys Leu Pro Leu Pro Ala Glu Arg Val Thr Leu Ala Asp  
 20 25 30  
 Phe Lys Gly Val Leu Gln Arg Pro Ser Tyr Lys Phe Phe Phe Lys Ser  
 35 40 45  
 Met Asp Asp Asp Phe Gly Val Val Lys Glu Glu Ile Ser Asp Asp Asn  
 50 55 60  
 Ala Lys Leu Pro Cys Phe Asn Gly Arg Val Val Tyr Trp Leu Val Ser  
 65 70 75 80  
 Ala Glu Gly Ser His Pro Asp Pro Ala Pro Phe Cys Ala Asp Asn Pro  
 85 90 95  
 Ser Glu Leu Pro Pro Pro Met Glu Arg Thr Gly Gly Ile Gly Asp Ser  
 100 105 110  
 Arg Pro Pro Ser Phe His Pro His Ala Gly Gly Gly Ser Gln Glu Asn  
 115 120 125  
 Leu Asp Asn Asp Thr Glu Thr Asp Ser Leu Val Ser Ala Gln Arg Glu  
 130 135 140  
 Arg Pro Arg Arg Arg Asp Gly Pro Glu His Ala Thr Arg Leu Asn Gly  
 145 150 155 160

Thr Ala Lys Gly Glu Arg Arg Arg Glu Pro Gly Gly Tyr Asp Ser Ser  
 165 170 175  
 Ser Thr Leu Met Ser Ser Glu Leu Glu Thr Thr Ser Phe Phe Asp Ser  
 180 185 190  
 Asp Glu Asp Asp Ser Thr Ser Arg Phe Ser Ser Ser Thr Glu Gln Ser  
 195 200 205  
 Ser Ala Ser Arg Leu Met Arg Arg His Lys Arg Arg Arg Arg Lys Gln  
 210 215 220  
 Lys Val Ser Arg Ile Glu Arg Ser Ser Ser Phe Ser Ser Ile Thr Asp  
 225 230 235 240  
 Ser Thr Met Ser Leu Asn Ile Ile Thr Val Thr Leu Asn Met Glu Lys  
 245 250 255  
 Tyr Asn Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Glu Arg Gly  
 260 265 270  
 Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala Val Ala  
 275 280 285  
 Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val Asn Glu  
 290 295 300  
 Ile Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val Leu Arg  
 305 310 315 320  
 Glu Ile Val His Lys Pro Gly Pro Ile Thr Leu Thr Val Ala Lys Cys  
 325 330 335  
 Trp Asp Pro Ser Pro Arg Gly Cys Phe Thr Leu Pro Arg Ser Glu Pro  
 340 345 350  
 Ile Arg Pro Ile Asp Pro Ala Ala Trp Val Ser His Thr Ala Ala Met  
 355 360 365  
 Thr Gly Thr Phe Pro Ala Tyr Gly Met Ser Pro Ser Leu Ser Thr Ile  
 370 375 380  
 Thr Ser Thr Ser Ser Ser Ile Thr Ser Ser Ile Pro Asp Thr Glu Arg  
 385 390 395 400  
 Leu Asp Asp Phe His Leu Ser Ile His Ser Asp Met Ala Ala Ile Val  
 405 410 415  
 Lys Ala Met Ala Ser Pro Glu Ser Gly Leu Glu Val Arg Asp Arg Met  
 420 425 430  
 Trp Leu Lys Ile Thr Ile Pro Asn Ala Phe Ile Gly Ser Asp Val Val  
 435 440 445  
 Asp Trp Leu Tyr His Asn Val Glu Gly Phe Thr Asp Arg Arg Glu Ala  
 450 455 460  
 Arg Lys Tyr Ala Ser Asn Leu Leu Lys Ala Gly Phe Ile Arg His Thr  
 465 470 475 480



Val Asn Lys Ile Thr Phe Ser Glu Gln Cys Tyr Tyr Ile Phe Gly Asp  
 485 490 495  
 Leu Cys Gly Asn Met Ala Asn Leu Ser Leu His Asp His Asp Gly Ser  
 500 505 510  
 Ser Gly Ala Ser Asp Gln Asp Thr Leu Ala Pro Leu Pro His Pro Gly  
 515 520 525  
 Ala Ala Pro Trp Pro Met Ala Phe Pro Tyr Gln Tyr Pro Pro Pro Pro  
 530 535 540  
 His Pro Tyr Asn Pro His Pro Gly Phe Pro Glu Leu Gly Tyr Ser Tyr  
 545 550 555 560  
 Gly Gly Gly Ser Ala Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser  
 565 570 575  
 Gly Ser Asn Arg Ser Gly Ser Asp Arg Arg Lys Glu Lys Asp Pro Lys  
 580 585 590  
 Ala Gly Asp Ser Lys Ser Gly Gly Ser Gly Ser Glu Ser Asp His Thr  
 595 600 605  
 Thr Arg Ser Ser Leu Arg Gly Pro Arg Glu Arg Ala Pro Ser Glu Arg  
 610 615 620  
 Ser Gly Pro Ala Ala Ser Glu His Ser His Arg Ser His His Ser Leu  
 625 630 635 640  
 Ala Ser Ser Leu Arg Ser His His Thr His Pro Ser Tyr Gly Pro Pro  
 645 650 655  
 Gly Val Pro Pro Leu Tyr Gly Pro Pro Met Leu Met Met Pro Pro Pro  
 660 665 670  
 Pro Ala Ala Met Gly Pro Pro Gly Ala Pro Pro Gly Arg Asp Leu Ala  
 675 680 685  
 Ser Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser Phe Arg Met Ala  
 690 695 700  
 Met Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met  
 705 710 715

<210> 42  
 <211> 670  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Disheveled 1 (Dvl-1) amino acid sequence

<400> 42  
 Met Ala Glu Thr Lys Ile Ile Tyr His Met Asp Glu Glu Glu Thr Pro  
 1 5 10 15  
 Tyr Leu Val Lys Leu Pro Val Ala Pro Glu Arg Val Thr Leu Ala Asp  
 20 25 30

Phe Lys Asn Val Leu Ser Asn Arg Pro Val His Ala Tyr Lys Phe Phe  
35 40 45  
Phe Lys Ser Met Asp Gln Asp Phe Gly Val Val Lys Glu Glu Ile Phe  
50 55 60  
Asp Asp Asn Ala Lys Leu Pro Cys Phe Asn Gly Arg Val Val Ser Trp  
65 70 75 80  
Leu Val Leu Ala Glu Gly Ala His Ser Asp Ala Gly Ser Gln Gly Thr  
85 90 95  
Asp Ser His Thr Asp Leu Pro Pro Pro Leu Glu Arg Thr Gly Gly Ile  
100 105 110  
Gly Asp Ser Arg Pro Pro Ser Phe His Pro Asn Val Ala Ser Ser Arg  
115 120 125  
Asp Gly Met Asp Asn Glu Thr Gly Thr Glu Ser Met Val Ser His Arg  
130 135 140  
Arg Glu Arg Ala Arg Arg Arg Asn Arg Glu Glu Ala Ala Arg Thr Asn  
145 150 155 160  
Gly His Pro Arg Gly Asp Arg Arg Arg Asp Val Gly Leu Pro Pro Asp  
165 170 175  
Ser Ala Ser Thr Ala Leu Ser Ser Glu Leu Glu Ser Ser Ser Phe Val  
180 185 190  
Asp Ser Asp Glu Asp Gly Ser Thr Ser Arg Leu Ser Ser Ser Thr Glu  
195 200 205  
Gln Ser Thr Ser Ser Arg Leu Ile Arg Lys His Lys Arg Arg Arg Arg  
210 215 220  
Lys Gln Arg Leu Arg Gln Ala Asp Arg Ala Ser Ser Phe Ser Ser Ile  
225 230 235 240  
Thr Asp Ser Thr Met Ser Leu Asn Ile Val Thr Val Thr Leu Asn Met  
245 250 255  
Glu Arg His His Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Asp  
260 265 270  
Arg Gly Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala  
275 280 285  
Val Ala Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val  
290 295 300  
Asn Asp Val Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val  
305 310 315 320  
Leu Arg Glu Ile Val Ser Gln Thr Gly Pro Ile Ser Leu Thr Val Ala  
325 330 335  
Lys Cys Trp Asp Pro Thr Pro Arg Ser Tyr Phe Thr Val Pro Arg Ala  
340 345 350

Asp Pro Val Arg Pro Ile Asp Pro Ala Ala Trp Leu Ser His Thr Ala  
 355 360 365  
 Ala Leu Thr Gly Ala Leu Pro Arg Tyr Glu Leu Glu Glu Ala Pro Leu  
 370 375 380  
 Thr Val Lys Ser Asp Met Ser Ala Val Val Arg Val Met Gln Leu Pro  
 385 390 395 400  
 Asp Ser Gly Leu Glu Ile Arg Asp Arg Met Trp Leu Lys Ile Thr Ile  
 405 410 415  
 Ala Asn Ala Val Ile Gly Ala Asp Val Val Asp Trp Leu Tyr Thr His  
 420 425 430  
 Val Glu Gly Phe Lys Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser Ser  
 435 440 445  
 Leu Leu Lys His Gly Phe Leu Arg His Thr Val Asn Lys Ile Thr Phe  
 450 455 460  
 Ser Glu Gln Cys Tyr Tyr Val Phe Gly Asp Leu Cys Ser Asn Leu Ala  
 465 470 475 480  
 Thr Leu Asn Leu Asn Ser Gly Ser Ser Gly Thr Ser Asp Gln Asp Thr  
 485 490 495  
 Leu Ala Pro Leu Pro His Pro Ala Ala Pro Trp Pro Leu Gly Gln Gly  
 500 505 510  
 Tyr Pro Tyr Gln Tyr Pro Gly Pro Pro Pro Cys Phe Pro Pro Ala Tyr  
 515 520 525  
 Gln Asp Pro Gly Phe Ser Tyr Gly Ser Gly Ser Thr Gly Ser Gln Gln  
 530 535 540  
 Ser Glu Gly Ser Lys Ser Ser Gly Ser Thr Arg Ser Ser Arg Arg Ala  
 545 550 555 560  
 Pro Gly Arg Glu Lys Glu Arg Arg Ala Ala Gly Ala Gly Gly Ser Gly  
 565 570 575  
 Ser Glu Ser Asp His Thr Ala Pro Ser Gly Val Gly Ser Ser Trp Arg  
 580 585 590  
 Glu Arg Pro Ala Gly Gln Leu Ser Arg Gly Ser Ser Pro Arg Ser Gln  
 595 600 605  
 Ala Ser Ala Thr Ala Pro Gly Leu Pro Pro Pro His Pro Thr Thr Lys  
 610 615 620  
 Ala Tyr Thr Val Val Gly Gly Pro Pro Gly Gly Pro Pro Val Arg Glu  
 625 630 635 640  
 Leu Ala Ala Val Pro Pro Glu Leu Thr Gly Ser Arg Gln Ser Phe Gln  
 645 650 655  
 Lys Ala Met Gly Asn Pro Cys Glu Phe Phe Val Asp Ile Met  
 660 665 670

<210> 43  
 <211> 736  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> human Disheveled 2 (Dvl-2) amino acid sequence

<400> 43  
 Met Ala Gly Ser Ser Thr Gly.Gly Gly Gly Val Gly Glu Thr Lys Val  
           1                  5                  10                  15  
 Ile Tyr His Leu Asp Glu Glu Glu Thr Pro Tyr Leu Val Lys Ile Pro  
                   20                  25                  30  
 Val Pro Ala Glu Arg Ile Thr Leu Gly Asp Phe Lys Ser Val Leu Gln  
           35                  40                  45  
 Arg Pro Ala Gly Ala Lys Tyr Phe Phe Lys Ser Met Asp Gln Asp Phe  
           50                  55                  60  
 Gly Val Val Lys Glu Glu Ile Ser Asp Asp Asn Ala Arg Leu Pro Cys  
           65                  70                  75                  80  
 Phe Asn Gly Arg Val Val Ser Trp Leu Val Ser Ser Asp Asn Pro Gln  
                   85                  90                  95  
 Pro Glu Met Ala Pro Pro Val His Glu Pro Arg Ala Glu Leu Ala Pro  
           100                  105                  110  
 Pro Ala Pro Pro Leu Pro Pro Leu Pro Pro Glu Arg Thr Ser Gly Ile  
           115                  120                  125  
 Gly Asp Ser Arg Pro Pro Ser Phe His Pro Asn Val Ser Ser Ser His  
           130                  135                  140  
 Glu Asn Leu Glu Pro Glu Thr Glu Thr Glu Ser Val Val Ser Leu Arg  
           145                  150                  155                  160  
 Arg Glu Arg Pro Arg Arg Arg Asp Ser Ser Glu His Gly Ala Gly Gly  
                   165                  170                  175  
 His Arg Thr Gly Gly Pro Ser Arg Leu Glu Arg His Leu Ala Gly Tyr  
           180                  185                  190  
 Glu Ser Ser Ser Thr Leu Met Thr Ser Glu Leu Glu Ser Thr Ser Leu  
           195                  200                  205  
 Gly Asp Ser Asp Glu Glu Asp Thr Met Ser Arg Phe Ser Ser Ser Thr  
           210                  215                  220  
 Glu Gln Ser Ser Ala Ser Arg Leu Leu Lys Arg His Arg Arg Arg Arg  
           225                  230                  235                  240  
 Lys Gln Arg Pro Pro Arg Leu Glu Arg Thr Ser Ser Phe Ser Ser Val  
                   245                  250                  255  
 Thr Asp Ser Thr Met Ser Leu Asn Ile Ile Thr Val Thr Leu Asn Met  
           260                  265                  270

Glu Lys Tyr Asn Phe Leu Gly Ile Ser Ile Val Gly Gln Ser Asn Glu  
 275 280 285  
 Arg Gly Asp Gly Gly Ile Tyr Ile Gly Ser Ile Met Lys Gly Gly Ala  
 290 295 300  
 Val Ala Ala Asp Gly Arg Ile Glu Pro Gly Asp Met Leu Leu Gln Val  
 305 310 315 320  
 Asn Asp Met Asn Phe Glu Asn Met Ser Asn Asp Asp Ala Val Arg Val  
 325 330 335  
 Leu Arg Asp Ile Val His Lys Pro Gly Pro Ile Val Leu Thr Val Ala  
 340 345 350  
 Lys Cys Trp Asp Pro Ser Pro Gln Ala Tyr Phe Thr Leu Pro Arg Asn  
 355 360 365  
 Glu Pro Ile Gln Pro Ile Asp Pro Ala Ala Trp Val Ser His Ser Ala  
 370 375 380  
 Ala Leu Thr Gly Thr Phe Pro Ala Tyr Pro Gly Ser Ser Ser Met Ser  
 385 390 395 400  
 Thr Ile Thr Ser Gly Ser Ser Leu Pro Asp Gly Cys Glu Gly Arg Gly  
 405 410 415  
 Leu Ser Val His Thr Asp Met Ala Ser Val Thr Lys Ala Met Ala Ala  
 420 425 430  
 Pro Glu Ser Gly Leu Glu Val Arg Asp Arg Met Trp Leu Lys Ile Thr  
 435 440 445  
 Ile Pro Asn Ala Phe Leu Gly Ser Asp Val Val Asp Trp Leu Tyr His  
 450 455 460  
 His Val Glu Gly Phe Pro Glu Arg Arg Glu Ala Arg Lys Tyr Ala Ser  
 465 470 475 480  
 Gly Leu Leu Lys Ala Gly Leu Ile Arg His Thr Val Asn Lys Ile Thr  
 485 490 495  
 Phe Ser Glu Gln Cys Tyr Tyr Val Phe Gly Asp Leu Ser Gly Gly Cys  
 500 505 510  
 Glu Ser Tyr Leu Val Asn Leu Ser Leu Asn Asp Asn Asp Gly Ser Ser  
 515 520 525  
 Gly Ala Ser Asp Gln Asp Thr Leu Ala Pro Leu Pro Gly Ala Thr Pro  
 530 535 540  
 Trp Pro Leu Leu Pro Thr Phe Ser Tyr Gln Tyr Pro Ala Pro His Pro  
 545 550 555 560  
 Tyr Ser Pro Gln Pro Pro Pro Tyr His Glu Leu Ser Ser Tyr Thr Tyr  
 565 570 575  
 Gly Gly Gly Ser Ala Ser Ser Gln His Ser Glu Gly Ser Arg Ser Ser  
 580 585 590

Gly Ser Thr Arg Ser Asp Gly Gly Ala Gly Arg Thr Gly Arg Pro Glu  
 595 600 605  
 Glu Arg Ala Pro Glu Ser Lys Ser Gly Ser Gly Ser Glu Ser Glu Pro  
 610 615 620  
 Ser Ser Arg Gly Gly Ser Leu Arg Arg Gly Gly Glu Ala Ser Gly Thr  
 625 630 635 640  
 Ser Asp Gly Gly Pro Pro Pro Ser Arg Gly Ser Thr Gly Gly Ala Pro  
 645 650 655  
 Asn Leu Arg Ala His Pro Gly Leu His Pro Tyr Gly Pro Pro Pro Gly  
 660 665 670  
 Met Ala Leu Pro Tyr Asn Pro Met Met Val Val Met Met Pro Pro Pro  
 675 680 685  
 Pro Pro Pro Val Pro Pro Ala Val Gln Pro Pro Gly Ala Pro Pro Val  
 690 695 700  
 Arg Asp Leu Gly Ser Val Pro Pro Glu Leu Thr Ala Ser Arg Gln Ser  
 705 710 715 720  
 Phe His Met Ala Met Gly Asn Pro Ser Glu Phe Phe Val Asp Val Met  
 725 730 735

<210> 44  
 <211> 108  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 or Wnt2 monoclonal  
 antibody

<220>  
 <223> ly21 Clone #1 anti-Wnt-1 and ly23w21kRs anti-Wnt-2  
 kappa light chain FR1 and CDR1 regions

<220>  
 <221> CDS  
 <222> (1)..(108)

<400> 44  
 gac att gtg ctg aca cag tct cct gct tcc tta gct gta tct ctg ggg 48  
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly  
 1 5 10 15  
 cag agg gcc acc atc tca tac agg gcc agc aaa agt gtc agt aca tct 96  
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser  
 20 25 30  
 ggc tat agt tat 108  
 Gly Tyr Ser Tyr  
 35

<210> 45  
 <211> 36  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 or Wnt2 monoclonal  
 antibody

<220>  
 <223> ly21 Clone #1 anti-Wnt-1 and ly23w21kRs anti-Wnt-2  
 kappa light chain FR1 and CDR1 regions

<400> 45  
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly  
           1                  5                  10                  15  
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser  
                   20                  25                  30  
 Gly Tyr Ser Tyr  
                   35

<210> 46  
 <211> 60  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 or Wnt2 monoclonal  
 antibody

<220>  
 <223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1  
 and ly23w21kRs anti-Wnt-2 kappa light chain FR2  
 and CDR2 regions

<220>  
 <221> CDS  
 <222> (1)..(60)

<400> 46  
 atg cac tgg aac caa cag aaa cca gga cag cca ccc aga ctc ctc atc 48  
 Met His Trp Asn Gln Gln Lys Pro Gly Gln Pro Pro Arg Leu Leu Ile  
           1                  5                  10                  15  
 tat ctt gta tcc 60  
 Tyr Leu Val Ser  
                   20

<210> 47  
 <211> 20  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 or Wnt2 monoclonal  
 antibody

<220>  
 <223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1  
 and ly23w21kRs anti-Wnt-2 kappa light chain FR2  
 and CDR2 regions

<400> 47  
 Met His Trp Asn Gln Gln Lys Pro Gly Gln Pro Pro Arg Leu Leu Ile  
 1 5 10 15  
 Tyr Leu Val Ser  
 20

<210> 48  
 <211> 21  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 monoclonal antibody

<220>  
 <223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1  
 kappa light chain FR3 region

<220>  
 <221> CDS  
 <222> (1)..(21)

<400> 48  
 aac cta gaa tct ggg gtc cct  
 Asn Leu Glu Ser Gly Val Pro  
 1 5

<210> 49  
 <211> 7  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt1 monoclonal antibody

<220>  
 <223> ly21 Clone #1 and ly22W1kRs Clone #2 anti-Wnt-1  
 kappa light chain FR3 region

<400> 49  
 Asn Leu Glu Ser Gly Val Pro  
 1 5

21



<210> 50  
<211> 21  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1  
kappa light chain FR3 region

<220>  
<221> CDS  
<222> (1)..(21)

<400> 50  
gcc agg ttc agt ggc agt ggg  
Ala Arg Phe Ser Gly Ser Gly  
1 5

21

<210> 51  
<211> 7  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> ly21 Clone #1 and ly22W11kRs Clone #2 anti-Wnt-1  
kappa light chain FR3 region

<400> 51  
Ala Arg Phe Ser Gly Ser Gly  
1 5

<210> 52  
<211> 120  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> ly21 Clone #1 anti-Wnt-1 kappa light chain FR3 and  
CDR3 regions

<220>  
<221> CDS  
<222> (1)..(111)

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<400> 52
tct ggg aca gac ttc acc ctc aac atc cat cct gtg gag gag gag gat 48
Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
  1           5           10           15

gct gca acc tat tac tgt cag cac att agg gag ctt aca cgt tcg gag 96
Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Thr Arg Ser Glu
          20           25           30

ggg gga cca agc tga aaaaacggg 120
Gly Gly Pro Ser
          35

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<210> 53
<211> 36
<212> PRT
<213> Unknown Organism

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<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly21 Clone #1 anti-Wnt-1 kappa light chain FR3 and
      CDR3 regions

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```

<400> 53
Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp
  1           5           10           15
Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Thr Arg Ser Glu
          20           25           30
Gly Gly Pro Ser
          35

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<210> 54
<211> 108
<212> DNA
<213> Unknown Organism

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<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt1 monoclonal antibody

<220>
<223> ly22W1lkRs Clone #2 anti-Wnt-1 kappa light chain
      FR1 and CDR1 regions

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<220>
<221> CDS
<222> (1)..(108)

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```

<400> 54
gac att gtg gtg aca cag tct cct gct tcc tta gct gta tct ctg ggg 48
Asp Ile Val Val Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
  1           5           10           15

```

cag agg gcc acc atc tca tac agg gcc agc aaa agt gtc agt aca tct 96  
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser  
                   20                  25                  30

ggc tat agt tat 108  
 Gly Tyr Ser Tyr  
                   35

<210> 55  
 <211> 36  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt1 monoclonal antibody

<220>  
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain  
           FR1 and CDR1 regions

<400> 55  
 Asp Ile Val Val Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly  
       1                  5                  10                  15  
 Gln Arg Ala Thr Ile Ser Tyr Arg Ala Ser Lys Ser Val Ser Thr Ser  
                   20                  25                  30

Gly Tyr Ser Tyr  
                   35

<210> 56  
 <211> 123  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt1 monoclonal antibody

<220>  
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain  
           FR3 and CDR3 regions

<220>  
 <221> CDS  
 <222> (1)..(114)

<220>  
 <221> modified\_base  
 <222> (93)  
 <223> n = g, a, c or t

<400> 56  
 tct ggg aca gac ttc acc ctc aac atc cat cct gtg gag gag gag gat 48  
 Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp  
       1                  5                  10                  15

gct gca acc tat tac tgt cag cac att agg gag ctt agc acg ttn cgg 96  
 Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Ser Thr Xaa Arg  
                   20                  25                  30

agg ggg gag cca agc tga aataaacgg 123  
 Arg Gly Glu Pro Ser  
                   35

<210> 57  
 <211> 37  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt1 monoclonal antibody

<220>  
 <223> ly22W1kRs Clone #2 anti-Wnt-1 kappa light chain  
           FR3 and CDR3 regions

<220>  
 <221> MOD\_RES  
 <222> (31)  
 <223> Xaa = Phe or Leu

<400> 57  
 Ser Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp  
       1                  5                  10                  15  
 Ala Ala Thr Tyr Tyr Cys Gln His Ile Arg Glu Leu Ser Thr Xaa Arg  
                   20                  25                  30  
 Arg Gly Glu Pro Ser  
                   35

<210> 58  
 <211> 21  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<220>  
 <221> CDS  
 <222> (1)..(21)

<400> 58  
 aac cta gaa tct agg agg tca 21  
 Asn Leu Glu Ser Arg Arg Ser  
       1                  5

<210> 59  
<211> 7  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt2 monoclonal antibody

<220>  
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<400> 59  
Asn Leu Glu Ser Arg Arg Ser  
1 5

<210> 60  
<211> 21  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt2 monoclonal antibody

<220>  
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<220>  
<221> CDS  
<222> (1)..(21)

<400> 60  
cct gcc agg ttc agt ggt cag  
Pro Ala Arg Phe Ser Gly Gln  
1 5

21

<210> 61  
<211> 7  
<212> PRT  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt2 monoclonal antibody

<220>  
<223> ly23w21kRs anti-Wnt-2 kappa light chain FR3 region

<400> 61  
Pro Ala Arg Phe Ser Gly Gln  
1 5

<210> 62  
<211> 134  
<212> DNA  
<213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly23w21kRs anti-Wnt-2 kappa light chain CDR3  
 region

<220>  
 <221> CDS  
 <222> (1)..(126)

<220>  
 <221> modified\_base  
 <222> (76)  
 <223> n = g, a, c or t

<400> 62  
 tgg tgt ctg gtg tac aga ctt cac cct cag aca tcc atg cct gtc gga 48  
 Trp Cys Leu Val Tyr Arg Leu His Pro Gln Thr Ser Met Pro Val Gly  
 1 5 10 15  
 gga gga gga tgc ctg caa cct gat tat ntg tgc agc aca tta ggg agc 96  
 Gly Gly Gly Cys Leu Gln Pro Asp Tyr Xaa Cys Ser Thr Leu Gly Ser  
 20 25 30  
 tta cac gtt acg gag ggg gga cca agc tga aaaaacgg 134  
 Leu His Val Thr Glu Gly Gly Pro Ser  
 35 40

<210> 63  
 <211> 41  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly23w21kRs anti-Wnt-2 kappa light chain CDR3  
 region

<220>  
 <221> MOD\_RES  
 <222> (26)  
 <223> Xaa = Val, Met or Leu

<400> 63  
 Trp Cys Leu Val Tyr Arg Leu His Pro Gln Thr Ser Met Pro Val Gly  
 1 5 10 15  
 Gly Gly Gly Cys Leu Gln Pro Asp Tyr Xaa Cys Ser Thr Leu Gly Ser  
 20 25 30  
 Leu His Val Thr Glu Gly Gly Pro Ser  
 35 40

<210> 64  
<211> 27  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> anti-Wnt-1 IgG1 heavy chain

<220>  
<221> modified\_base  
<222> (1)..(27)  
<223> n = g, a, c or t

<400> 64  
ngttncagcc tgnaggagtc nggtgga

27

<210> 65  
<211> 72  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> anti-Wnt-1 IgG1 heavy chain

<400> 65  
ggattggtgc agcctaaagg gtcattgaaa ctctcatgtg cagcctctgg attcactttt 60  
aatacctacg cc 72

<210> 66  
<211> 102  
<212> DNA  
<213> Unknown Organism

<220>  
<223> Description of Unknown Organism:hybridoma cell  
line producing anti-human Wnt1 monoclonal antibody

<220>  
<223> anti-Wnt-1 IgG1 heavy chain

<400> 66  
atgaactggg tccgccaggc tccaggaaag ggtttggaat gggttgctcg cataagaact 60  
agacgttata attctgcaac atattatgcc gattctgtga aa 102

<210> 67  
<211> 100  
<212> DNA  
<213> Unknown Organism

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<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt1 monoclonal antibody

<220>
<223> anti-Wnt-1 IgG1 heavy chain

<400> 67
gacaggttca ccattctccag agatgattca cggggcatgc tctatctgca aatgaacaac 60
ttgaaaactg aggacacagc catgtattac tgtgtgaggc                               100

<210> 68
<211> 11
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 region

<220>
<221> modified_base
<222> (5)
<223> n = g, a, c or t

<400> 68
agtcnggacc t                                                                11

<210> 69
<211> 72
<212> DNA
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
        line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 and
        CDR1 regions

<220>
<221> CDS
<222> (1)..(72)

<400> 69
gag ctg gtg aag cct ggg gct tca gtg aag atg tcc tgc aag gct tct 48
Glu Leu Val Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser
  1             5             10             15

gga tac aca ttc act gac tat gtt
Gly Tyr Thr Phe Thr Asp Tyr Val
      20
gga tac aca ttc act gac tat gtt
Gly Tyr Thr Phe Thr Asp Tyr Val
      20

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<210> 70  
 <211> 24  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR1 and  
 CDR1 regions

<400> 70  
 Glu Leu Val Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser  
 1 5 10 15  
 Gly Tyr Thr Phe Thr Asp Tyr Val  
 20

<210> 71  
 <211> 75  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR2 and  
 CDR2 regions

<220>  
 <221> CDS  
 <222> (1)..(75)

<400> 71  
 tta agc tgg gtg aag cag aga act gga cag ggc ctt gag tgg att gga 48  
 Leu Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile Gly  
 1 5 10 15  
 gag att tat cct gga tat ggt agt act 75  
 Glu Ile Tyr Pro Gly Tyr Gly Ser Thr  
 20 25

<210> 72  
 <211> 25  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
 line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR2 and  
 CDR2 regions

<400> 72  
 Leu Ser Trp Val Lys Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile Gly  
           1                  5                  10                  15

Glu Ile Tyr Pro Gly Tyr Gly Ser Thr  
                   20                  25

<210> 73  
 <211> 21  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 region

<220>  
 <221> CDS  
 <222> (1)..(21)

<400> 73  
 tac tac aat gag aag ttc aag  
 Tyr Tyr Asn Glu Lys Phe Lys  
           1                  5

21

<210> 74  
 <211> 7  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 region

<400> 74  
 Tyr Tyr Asn Glu Lys Phe Lys  
           1                  5

<210> 75  
 <211> 156  
 <212> DNA  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism:hybridoma cell  
           line producing anti-human Wnt2 monoclonal antibody

<220>  
 <223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 and  
           CDR3 regions

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<220>
<221> CDS
<222> (1)..(156)

<220>
<221> modified_base
<222> (1)..(156)
<223> n = g, a, c or t

<400> 75
ggc aag gcc aca ctg act gct gac aaa tcc tcc aac aca gcc tac atg 48
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr Met
  1             5             10             15

cag ctc agc agc ctg aca tct gag gac tct gcg gtc tat ttc tgt gca 96
Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala
      20             25             30

aga tgg ggg gat tgc ttt tgc tta tct ggg gcc aag gga nct ctg gtc 144
Arg Trp Gly Asp Cys Phe Cys Leu Ser Gly Ala Lys Gly Xaa Leu Val
      35             40             45

anc tgt ctc tgc 156
Xaa Cys Leu Cys
  50

<210> 76
<211> 52
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism:hybridoma cell
      line producing anti-human Wnt2 monoclonal antibody

<220>
<223> ly25W2HgRs anti-Wnt-2 IgG1 heavy chain FR3 and
      CDR3 regions

<220>
<221> MOD_RES
<222> (46)
<223> Xaa = Ala, Thr, Pro or Ser

<220>
<221> MOD_RES
<222> (49)
<223> Xaa = Ser, Asn, Thr or Ile

<400> 76
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr Met
  1             5             10             15

Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala
      20             25             30

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Arg Trp Gly Asp Cys Phe Cys Leu Ser Gly Ala Lys Gly Xaa Leu Val  
           35                          40                          45

Xaa Cys Leu Cys  
           50

<210> 77  
 <211> 12  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> amino acids 201-212 of human Wnt-1

<400> 77  
 His Asn Asn Glu Ala Gly Arg Thr Thr Val Phe Ser  
       1                          5                          10

<210> 78  
 <211> 14  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> amino acids 39-52 of human Wnt-1

<400> 78  
 Asn Val Ala Ser Ser Thr Asn Leu Leu Thr Asp Ser Lys Ser  
       1                          5                          10

<210> 79  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:peptide linker

<400> 79  
 Gly Gly Gly Gly Ser  
       1                          5

<210> 80  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:synthetic  
       peptide corresponding to amino acid 201-212 of  
       human Wnt-1

<220>  
 <221> MOD\_RES  
 <222> (1)  
 <223> Xaa = N-acetyl His

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<220>
<221> MOD_RES
<222> (12)
<223> Xaa = serinamide

<400> 80
Xaa Asn Asn Glu Ala Gly Arg Thr Thr Val Phe Xaa
  1                      5                      10

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